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Compliance Monitoring Procedures

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A set of guidelines, procedures, and checklists is given to aid in monitoring compliance with water pollution abatement requirements. The report discusses facility inspections and sampling as these relate to monitoring objectives, with some attention to equipment and testing procedures.

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ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ENFORCEMENT

COMPLIANCE MONITORING PROCEDURES

NATIONAL FIELD INVESTIGATIONS CENTER-DENVER
DENVER, COLORADO

JULY 1974

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COMPLIANCE MONITORING PROCEDURES

1 (a)

July 5, 1974

NATIONAL FIELD INVESTIGATIONS CENTER - DENVER

COMPLIANCE MONITORING PROCEDURES

Verification Monitoring is required to document the effectiveness of self monitoring and reporting activities of permittees and to provide sufficient documentation and verification of NPDES permit conditions and related requirements to justify the issuance of section 309 regulatory orders or other enforcement actions. Verification monitoring, then, will be performed in sufficient detail to acquire primary evidence to satisfy case preparation requirements.

National Field Investigations Center procedures, as outlined below, are consistent with, and meet the objectives of, the overall EPA compliance monitoring strategy. Major emphasis will be placed upon specific permit parameters (effluent limitations, compliance schedules, etc.) although additional surveillance may be required to demonstrate water quality standards violations, the discharge of toxic substances, etc.

To provide the basis for design of the sampling program at each location, a variety of background information will be obtained, compiled and evaluated prior to on-site visits. This will normally be accomplished in two steps. The General Point Source File (GPSF) and auxiliary computerized data bases will be searched and all available application data, permit requirements (effluent limitations, monitoring requirements, compliance schedules), and self-monitoring data will be retrieved. A visit will then be made to the Regional and/or State office, as appropriate, to review permit files and collect additional information, as necessary, to provide the most current data available on production, pollution controls and compliance with permit requirements. The self-monitoring reports will be screened for permit violations, manually at first and, optionally by computer after GPSF becomes fully functional. As a general rule, the Regional office should provide the permittee with reasonable notice of a time period within which inspections and sampling will be conducted. It will be more meaningful, however, to schedule "unannounced" visits for the actual verification and sampling.

Facility inspections and sampling are designed to be consistent with the overall compliance monitoring objectives. In-plant evaluations will be conducted prior to, or concurrent with, the sampling program. In-plant evaluations will be made by personnel most knowledgeable of the particular waste source and the processes employed. Industrial dischargers will be subjected to process evaluations to verify that the processes, raw materials, amount of product produced, water usage, waste treatment processes and other similar factors relative to concentrations and loads of pollutants

Compliance Monitoring Procedures (Continued)

contained in the discharges are as described in the permit application and the issued permit. In the case of municipal dischargers, O & M procedures, wastewater quantity and quality, raw waste load, type of industrial waste input, pretreatment regulations and compliance, etc. will be evaluated. Monitoring of the influent to a municipal facility may also be required where the permit is controlled by the percentage-removal provisions of the secondary treatment regulations. Process verification also includes determining that solids, sludge, filter backwash and other pollutants removed from wastewater are not entering navigable waters.

Effluent monitoring will be conducted for the parameters and within the time frames as specified in the NPDES permit. Generally, three or more operating day composite samples with calculated loads and concentrations will be considered the minimum to acquire representative and technically defensible data to verify wastewater characteristics and provide the basis for prosecution, if necessary.

In cases where effluent limitations are prescribed in the permit which are more stringent than published effluent guidelines because of water quality standards, limited stream surveys may also be conducted. Stream surveys may also be required where toxic or deleterious substances are suspected of being discharged. Stream surveying may be necessary to demonstrate irreparable harm for anticipated court action where known toxic pollutants or deleterious materials are discharged.

Sampling will be accomplished using automatic samplers, whenever possible. Appropriate security measures will be taken to insure the integrity of the sampling device and collected samples. NFIC - Denver published chain-of-custody procedures will be followed at all times.

Flow measuring devices used by the permittee will be checked for accuracy and, where necessary, EPA personnel will install independent flow measuring equipment for use during the monitoring period.

At facilities discharging deleterious substances, biological monitoring may be required to determine compliance with permit conditions or demonstrate the need for control of additional pollutant parameters. Such monitoring would consist of bioassays, fish survival studies, or other biological tests to determine the suitability of discharge of the effluent to receiving waters. Biological monitoring may also be considered when it is determined or suspected that the receiving waterway is water quality limited.

Water samples will be collected that are representative of the waste effluent. When possible, samples will be preserved and analyzed at the NFIC - Denver central laboratory under closely controlled conditions. Samples which require immediate analysis, will be run on-site at a mobile field laboratory. In all cases, there will be strict adherence to recommended maximum holding times.

Compliance Monitoring Procedures (Continued)

Standardized procedures have been instituted by the Center for insuring sample integrity during collection, transportation, storage, and analysis. These procedures, as well as documented chain-of-custody procedures, protect against mis-identification, loss or error of data relating to sampling, theft, loss, damage, or alteration of the sample.

Physical and chemical analysis for determining compliance with effluent limitations will be performed by the use of acceptable analytical methods as set forth in the Federal Register pursuant to section 304(g) of the Federal Water Pollution Control Act Amendments of 1972. For analysis of components whose test procedures have not yet been promulgated or defined in the permit, defensible professional judgment will be exercised in selection of suitable test procedures.

In order to demonstrate that the analytical laboratory can perform a test in a correct and reproducible manner, the laboratory will analyze a suitable number of replicate and standard spiked samples to demonstrate that the test can be performed within the published precision and accuracy range. Laboratory instruments essential to the monitoring program will be properly maintained and calibrated. Regular, periodic calibration checks and re-calibrations will be performed on measuring instruments such as electrometers, volumetric equipment and weighing devices and test solutions. Wherever possible, the ultimate reference for all calibrations will be weights, volumetric glassware, thermometers, reagent standards, etc. bearing certificates of an approved standardization program (e.g., National Bureau of Standards).

The laboratory has established an analytical quality control program to demonstrate on a day-to-day basis that the laboratory is producing reliable information. Basically, the overall quality control program will utilize a combination of techniques such as periodic standardization, replicate sample analysis, standard spiked sample recovery and reference sample analysis.

Data summaries resulting from each laboratory evaluation will be thoroughly reviewed and accompanied by a brief report that quantifies the precision and accuracy of the data reported. This report will also specify any problems or interference encountered.

A report and checklist covering the findings of the in-plant evaluation, an interpretation of the monitoring results and recommendations will be prepared and forwarded to the Regional Office Enforcement Director within four weeks of survey completion. In cases where gross permit violations are evident and enforcement action may be required, the Enforcement Director will be immediately notified. Enforcement Division/NFIC mid-survey discussions may result in expanding the scope of a survey should it become evident that immediate enforcement action is necessary.

COMPLIANCE MONITORING CHECKLIST

NATIONAL FIELD INVESTIGATIONS CENTER - DENVER
COMPLIANCE MONITORING CHECKLIST

_____ _____
_____ _____
_____ _____

EXACT NAME OF DISCHARGER, CITY AND STATE

NAME, ADDRESS, AND TELEPHONE NUMBER OF HIGHEST OFFICIAL OF COMPANY OR MUNICIPALITY DISCHARGING

RECEIVING WATER:_____ NPDES PERMIT NO._____

STATE PERMIT NO._____

I. BACKGROUND INFORMATION

A. DISCHARGER IS: MUNICIPALITY_____; INDUSTRY_____; OTHER (SPECIFY)_____

B. TYPE OF OPERATION*

C. PRODUCTION: ACTUAL_____ PERMIT_____

D. WATER SUPPLY: WELL(S)_____ SURFACE_____ OTHER_____

E. DISCHARGE IS: CONTINUOUS_____ INTERMITTENT_____ BATCH_____

ACCIDENTAL SPILL_____ OTHER_____

F. RECEIVING WATER CLASSIFICATION_____

G. EFFLUENT LIMITATIONS NOW APPLICABLE: INITIAL_____ INTERIM_____

FINAL (BPCTA)_____

*e.g., PRIMARY WWTP SERVING XXX PEOPLE; SUGAR MILL, ETC.

II. SUMMARY OF SELF REPORTING DATA

A. EFFLUENT LIMITATIONS VIOLATIONS:

PARAMETER	PERMIT CONDITIONS DAILY AVG.	DAILY MAX.	SELF REPORTING DATA VIOLATIONS DAILY AVG.	DAILY MAX.	DATE
FLOW					

MAGNITUDE OF VIOLATIONS:

NUMBER OF VIOLATIONS PER NUMBER OF SAMPLES:

B. COMPLIANCE SCHEDULE VIOLATIONS:

MILESTONE	PERMIT DATE	ACTUAL ACHIEVEMENT DATE

C. OTHER PERMIT CONDITIONS VIOLATED:

III. IN-PLANT EVALUATION

A. DATE OF EVALUATION_____

B. VERIFICATION OF OPERATION CHANGES

	YES	NO	REMARKS
1. INDUSTRIAL			
a. PROCESS	___	___	_____
b. RAW MATERIALS	___	___	_____
c. AMOUNT OF PRODUCT PRODUCED	___	___	_____
d. WATER USAGE	___	___	_____
e. WASTE TREATMENT PROCESSES	___	___	_____
f. OTHER_____			
2. MUNICIPAL			
a. O & M PROCEDURES	___	___	_____
b. WASTEWATER QUANTITY	___	___	_____
c. WASTEWATER QUALITY	___	___	_____
d. INFLUENT WASTE LOAD	___	___	_____
e. TYPE AND PERCENTAGE INDUSTRIAL INPUT	___	___	_____
f. PRETREATMENT REGULATIONS	___	___	_____
g. OTHER_____			
3. OTHER			

4. SOLIDS, SLUDGE, FILTER BACKWASH, AND OTHER POLLUTANTS REMOVED BY TREATMENT ARE NOT ENTERING NAVIGABLE WATERS

YES ___ NO ___

IV. FIELD AND LABORATORY RESULTS

A. DATES OF FIELD SURVEY_____ DATES OF ANALYSES_____

B. FLOW MEASURED BY: COMPANY DEVICE_____ TYPE_____ PRECISION_____

EPA MEASURING DEVICE_____ TYPE_____ PRECISION_____

QUANTITY_____

C. FIELD INSTRUMENTS STANDARDIZED _____ YES _____ NO

D. PROPER PRESERVATION AND SAMPLE HOLDING TIMES ADHERED TO _____ YES _____ NO

E. PROMULGATED GUIDELINES ESTABLISHING TEST PROCEDURES FOR ANALYZING OF POLLUTANTS FOLLOWED ____ YES ____ NO

F. ANALYTICAL QUALITY CONTROL PROCEDURES FOLLOWED _____ YES _____ NO

G. CHAIN OF CUSTODY PROCEDURES FOLLOWED _____ YES _____ NO

H. ADEQUACY OF SAMPLING LOCATION:

I. BIOLOGICAL MONITORING RESULTS:

J. WATER QUALITY STANDARDS VIOLATIONS:

STREAM FLOW_____ SOURCE OF INFORMATION_____

WQ STANDARDS	SURVEY DATA VIOLATIONS	DATE

IV. FIELD AND LABORATORY RESULTS (CONTINUED)

K. EFFLUENT LIMITATIONS VIOLATIONS:

PARAMETER	PERMIT CONDITIONS DAILY AVG.	DAILY MAX.	SURVEY DATA VIOLATIONS DAILY AVG.	DAILY MAX.	DATE

MAGNITUDE OF VIOLATIONS:

NUMBER OF VIOLATIONS PER NUMBER OF SAMPLES:

V. PRECISION AND ACCURACY OF AVAILABLE DATA

A. CONSIDERING THE VARIABILITY OF THE TESTING PROCEDURES, IS IT LIKELY THAT THE VIOLATIONS LISTED ARE: REAL_____ APPARENT_____

REMARKS:

B. IF ADDITIONAL DATA REQUIRED, EXPLAIN NATURE OF DATA, ETC.

VI. VIOLATIONS

A. FEDERAL WATER POLLUTION CONTROL ACT AMENDMENTS OF 1972:

1. FAILURE TO FILE FOR NPDES PERMIT_____

2. SECTION 301 EFFLUENT LIMITATION_____ OR
COMPLIANCE SCHEDULE_____

3. SECTION 302 WATER QUALITY LIMITED EFFLUENT LIMITATION_____ OR
COMPLIANCE SCHEDULE_____

4. SECTION 306 STANDARD OF PERFORMANCE_____

5. SECTION 307(a) TOXIC POLLUTANT STANDARD_____

6. SECTION 307(b) PRETREATMENT STANDARD_____

7. SECTION 308 INSPECTIONS, MONITORING AND ENTRY_____

8. OTHER:

B. REFUSE ACT:_____

CHECKLIST CERTIFIED BY: DATE

_____ _____

PLANT EVALUATION AND FIELD SURVEY PROCEDURES

PLANT EVALUATION AND FIELD SURVEY PROCEDURES

Although each field survey and plant evaluation are different, there are certain procedures which are common to all. Assuming that the problem has been adequately, or at least generally defined, background information must be evaluated and updated before going into the field. Background data may consist of:

1. NPDES or RAPP applications and/or permits
2. Previous field surveys conducted in the area
3. Reports by the industries and industrial listings
4. Literature reviews
5. Legal actions in the area
6. Climatology
7. Historical stream flows of major waterways
8. Applicable water quality and air quality standards

Appropriate Federal, state, and municipal officials should be contacted to discuss the objectives of the survey. Records may be available from these officials which can be used for background information.

A reconnaissance trip is next in the plan of action. Waste sources must be investigated to validate the background information. Prior to making the trip, all companies should be contacted and appointments established. Once the schedule is firm, state authorities should be notified as they may want to be present during the interviews. It is important to allow sufficient time during the plant inspections so that all information is obtained on one visit. Large industrial

Plant Evaluation and Field Survey Procedures (Continued)

complexes may require several days while smaller companies may only take several hours. Knowing exactly what the purpose of the survey is and the role each industry plays will provide the basis of the interview and evaluation. An interview form should be prepared before the actual inspection and may include the following:

1. Company name, location, corporate headquarters.
2. Company official, phone, title.
3. Description of production process, rates (average and maximum), hours of operation, cleanup schedule, number of employees.
4. Waste treatment practices, efficiencies of equipment, waste loads or emissions.
5. Number and location of all outfalls including discharges to city sewers.
6. Establish sampling locations and how flows will be measured (this is very important).
7. Water supplies, quantities, sources, flow measurements.
8. Air pollution control equipment wastewater flows.
9. Solid waste disposal.
10. Anticipated changes or expansion.
11. Blueprints or drawings of plant layout.
12. Design specs on pollution control equipment.
13. Operational problems.
14. OSHA regulations which apply to field crews.

Plant Evaluation and Field Survey Procedures (Continued)

15. Will the company want to split samples.
16. Water quality standards and classification of receiving waters (i.e., where water quality limiting).

Additional information required while on the reconnaissance include:

1. Sufficient area maps for field crews.
2. Establish locations for mobile laboratories.
3. Accommodations for field personnel.
4. Airline freight schedules.
5. Locations of state, city and Federal offices and the contacts within each office.
6. Supply of ice for preservation.
7. Location of hospitals.
8. Set of area telephone books.

The background information and field reconnaissance data are then used to set up the actual survey. All waste sources should be located on a map and the dates established when they will be investigated. Logistics should be worked out to reduce travel time. After the dates are established, all companies should be notified and permission to sample obtained in writing when applicable.

All waste sources should be assigned a sample location number with all analyses listed (i.e., those for which effluent limitations have been established and others as required, e.g., toxic substances). The daily analytical load will be determined on the basis of laboratory capability. Where there is a water quality limiting situation, the receiving waters will be monitored to determine compliance or non-compliance

Plant Evaluation and Field Survey Procedures (Continued)

with applicable water quality standards.

Equipment and manpower requirement will be determined and included as part of the study plan. The plan will be revised as necessary. A briefing of all personnel involved will be held prior to the survey.

PLANT EVALUATION FORMS

INDUSTRIAL PLANT EVALUATION FORM

GENERAL

Company: _____ Date Visited: _____

Location: _____ EPA Personnel: _____

Contact: _____

Title: _____ Phone No. _____

Main Office: _____

_____

_____

Raw Materials Used: _____

_____

_____

Finished Products & Current Production Rates: (Flow Diagram) _____

_____

_____

Rated Plant Capacity: _____

Previous Studies: _____

_____

_____

OPERATIONS

No. of Days/Week _____ No. of Hrs/Day _____

No. of Production Employees _____

_____

Date Plant Began Operating _____

Current Operating Permits & Applications Filed: _____

_____

_____

Plant Evaluation Form (Continued)

WATER SUPPLY & USES

Source(s):_____

_____

_____

Treatment:_____

_____

_____

Use(s) & Quantity Used:_____

_____

_____

Analysis:_____

_____

_____

WASTE SOURCES & TREATMENT

A. Domestic Waste - Quantity:_____

_____

Type of Treatment:_____

_____

Receiving Water:_____

_____

Analysis:_____

_____

B. Process Waste(s) _____

_____

Source & Quantity:_____

_____

Plant Evaluation Form (Continued)

Treatment (flow diagram) _____

Receiving Waters (State classification and uses)_____

Analysis of Effluent_____

FUTURE PLANS (Expansion, modification of process, water reuse, by-product recovery, etc)

Plant Evaluation Form (Continued)

FIELD NOTES & OBSERVATIONS: _____

By _____(Signature)

Date _____

MUNICIPAL PLANT EVALUATION FORM

GENERAL

Name of Facility_____ Date Visited_____

Location_____ EPA Personnel_____

Contact_____ _____

City Official_____

_____

Type of Treatment;Units Employed (Flow Diagram)_____

_____

_____

_____

Industrial Waste Contribution (Percentage, Types,Pre-treatment ordinance, etc.)

_____

_____

_____

Flow Devices Utilized_____

Design Capacity(Ave. & Max) Flow_____

Wasteload (BOD, Solids, etc.)_____

_____

Present Conditions (Max, Min, Ave.) - Flow_____Wasteload (BOD, Solids, etc)

Influent_____

_____

Effluent_____

_____

Wet Weather Flow vs Dry Weather Flow_____

_____

Lift Stations (No., By-Pass, Auxillary Power Unit, etc.)_____

_____

_____

RECEIVING WATER

Name_____

Classification & Use_____

OPERATIONS

No. of Plant Operators_____

Certification Held by Operators_____

No. of Hours and Days Operators on Duty_____

Current Operation Permits and Effluent Limitations_____

_____

_____

Laboratory Provided_____

Type of Analyses Performed_____

_____

Type of Samples Collected (Grab, Composite)_____

Summary of Historical & Present Data_____

_____

_____

_____

_____

Wastewater Reuse _____

Future Plans (Expansion, Modifications, Etc.)_____

_____

_____

_____

_____

_____

_____

_____

Field Notes & Observations (Problem w/sampling, etc.)_____

_____

_____

_____

_____

_____

By_____
(Signature)

Date_____

CHECKLIST FOR FLOW MEASUREMENT EQUIPMENT INSTALLED BY EPA

CHECKLIST FOR FLOW MEASUREMENT EQUIPMENT INSTALLED BY EPA

Name of Industry or Municipality_____

Date of Installation_____ Date of Removal_____

Permit Discharge No._____

Type Samples to be Collected_____ Grab;_____ Time Weighted Composite

_____ Flow Weighted Composite

Type of Wastes:_____

Type of Discharge:

_____ Batch_____ Hrs/Batch,_____ Number/Day.

_____ Continuous,_____ Hrs/Day

[1]Selection of Flow Measuring Site:

Description of Discharge Channel_____

_____

Depth of Flow in Channel_____ (Ft)

Velocity of Flow in Channel_____ (FPS)

Range of Flow Expected_____ (mgd)

Type of Device Installed_____

Discharge Capacity of Device_____ (mgd)

Type of Recording Device Installed_____

Relation Between Recording Device and Measuring Device_____

_____

_____

Date_____ By_____ (Signature)

[1]Site location and flow measurement device can be selected based on criteria set forth in Water Measurement Manual, U. S. Dept. of Interior, Bureau of Reclamation, Denver, Colorado 1967 and Handbook For Monitoring Industrial Wastewater, Technology Transfer, U.S. EPA August 1973.

CHECKLIST FOR EXISTING FLOW MEASUREMENT DEVICES

CHECKLIST FOR EXISTING FLOW MEASUREMENT DEVICES[1]

Name of Industry or Municipality_____

Name of Contact_____

Date:_____

Permit Discharge Number:_____

Type of Wastes:_____

Type of Discharge: Batch_____, _____Hrs/Batch,_____Number/Day

Continuous_____, _____Hrs/Day

[2]Type of Measurement Device:_____ _____

[3]Dimensions (e.g., Length of Weir)_____

_____

_____

Capacity of Device_____(Max-Min mgd)

Range of Flows (From Self-Monitoring Record)_____

[3,4]Is Device Properly Installed_____Yes;_____No.

If no, specify reasons installation is not correct:_____

_____

_____

When was device last calibrated by company:_____

Type of Stage Recording Device (manufacturer, model, etc.)_____

Relation Between Recording Device and Measuring Device _____

_____

Is Recorder Device Properly Installed:_____Yes;_____No

If no, specify reasons installation is not correct:_____

_____

_____

Checklist for Existing Flow Measurement Devices (Continued)

Is Recording Device Functioning Properly: _____Yes;_____No

If no, specify reasons for malfunctions: _____

_____

Remarks_____

_____

_____

_____

_____

Date_____ By_____(Signature)

[1]Device installed by discharger.

[2]Examples: 60° V-notch, Parshall Flume, rectangular wier, Cipolletti weir, etc.

[3]Information recorded depends on type of measurement device. The accuracy and adequacy of the device will be ascertained using the criteria set forth in the Water Measurement Manual, U. S. Department of the Interior, Bureau of Reclamation, Denver, Colorado 1967, and the Handbook for Monitoring Industrial Wastewater, Technology Transfer, U.S. EPA. August 1973.

[4]A check of the device will be made to determine if, for example, it is level, is it at a suitable location, is there leakage, is there free or submerged flow, etc. The reference cited in Footnote #3 contains a list of points to be considered when installing flow measurement devices.

CHECKLIST FOR FIELD INSTRUMENTS

CHECKLIST FOR FIELD INSTRUMENTS

Date:_____ Time_____ By:_____

Conductivity Meter: Model_____

Identification No. _____

Probe_____; Battery_____

[1]Remarks_____

_____

pH Meter: Model_____

Identification No._____

Calibration (Reference) pH 4.0_____, pH 7.0_____, pH 9.0_____

Recorder_____

[1]Remarks_____

_____

Thermometer (check against National Bureau of Standards thermometer)_____

Date_____ By_____ (Signature)

[1]Indicate if instrument is working properly. If not, what changes were necessary.

CHECKLIST FOR INSTALLATION OF AUTOMATIC SAMPLER

CHECKLIST FOR INSTALLATION OF AUTOMATIC SAMPLER

Name of Industry or Municipality _____

Name of Contact _____

Date of Installation _____

Time Sampling Commenced _____ Time Sampling Ended _____

Date of Removal _____

Number of Sampler _____ Permit Discharge No. _____

[1] Sampler Location (Describe) _____

_____

Nearest Power Available _____

Nearest Cleanup Facilities Available _____

Description of Waste Channel _____

Type Wastes to be Sampled _____

[2] Position of Sampler Intake _____

Type of Sample: _____ Grab; _____ Composite (flow weighted) ___

Reason Method Selected _____ (equal volume) _____

Time Period Covered _____

Specify the Compositing Interval[3] (i.e., continuous, 15 min., 1 hr., etc.) _____

_____

[4] Method of Preservation (e.g., Temperature Control) _____

_____

_____

Method of Securing Sampler (Maintenance of Chain of Custody) _____

_____

_____

Checklist for Installation of Automatic Sampler (Continued)

[5]Periodic Inspection of Sampler

Date_____ Time_____

Position of Sample Intake_____

Mechanical Operation of Sampler_____

Check of Sample Preservation (e.g., temperature control) _____

_____

Security (Check for Possible Tampering, etc.)_____

_____

Date_____ By_____(Signature)

[1]Sampler shall be located so that a representative sample is collected. Dye will be used to determine the mixing characteristics.

[2]Wastes containing high solids, rags, fibrous material, etc. can clog intake of sampler. Intake must be placed to minimize while at same time obtaining a representative sample.

[3]Interval should be such that a representative sample is collected during the compositing period.

[4]Method used to preserve sample (i.e., temperature, chemical, etc.) and maintain at that level.

[5]This inspection generally made several times per day.

ANALYTICAL QUALITY CONTROL CHECKLIST

NATIONAL FIELD INVESTIGATIONS CENTER - DENVER
ANALYTICAL QUALITY CONTROL CHECKLIST

_____

_____
EXACT NAME OF DISCHARGER,
CITY AND STATE

		YES	NO	REMARKS
1.	CHAIN OF CUSTODY PROCEDURES FOLLOWED	___	___	_____
2.	REAGENTS, STANDARDS, BLANKS, AND DILUTIONS PREPARED USING DISTILLED WATER FROM THE APPROVED LABORATORY SUPPLY	___	___	_____
3.	REAGENTS AND STANDARDS PREPARED USING AR GRADE CHEMICALS UNLESS OTHER PURITY GRADES ARE SUGGESTED BY THE PROPER PROCEDURE	___	___	_____
4.	REAGENTS STANDARDIZED IN ACCORDANCE WITH THE PROCEDURE APPLIED	___	___	_____
5.	STANDARDIZATION DATA REPORTED TO THE AQC OFFICER WITH THE RAW DATA	___	___	_____
6.	CLASS A (NBS) MEASURING GLASSWARE USED THROUGHOUT THE ANALYSIS. ANY VOLUMETRIC MEASURING DEVICES NOT CLASSIFIED ACCORDING TO FEDERAL SPECIFICATIONS OF CIRCULAR 602 OF NBS CALIBRATED PRIOR TO USE	___	___	_____
7.	PRECISION CALCULATED AS STANDARD DEVIATION OF REPLICATE ANALYSES CONDUCTED AT LEAST ONCE EVERY TEN SAMPLES. IF FEWER THAN TEN SAMPLES ARE ANALYZED AS A SINGLE SERIES, AT LEAST ONE REPLICATE SAMPLE INCLUDED IN THE SERIES	___	___	_____
8.	ACCURACY CALCULATED AS PERCENT RECOVERY FROM STANDARD ADDITIONS ANALYZED AT LEAST ONCE EVERY TEN SAMPLES. IF FEWER THAN TEN SAMPLES ARE ANALYZED AS A SINGLE SERIES, AT LEAST ONE STANDARD ADDITION INCLUDED IN THE SERIES	___	___	_____
9.	REPLICATES AND STANDARD ADDITIONS PREPARED AND ANALYZED CONCURRENTLY WITH THE UNKNOWN SAMPLE SERIES	___	___	_____
10.	CUSTODY OF REMAINING SAMPLE ALIQUOT SECURED AND MAINTAINED	___	___	_____

CHECKLIST CERTIFIED BY: DATE

_____ _____

CHAIN OF CUSTODY PROCEDURES

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ENFORCEMENT
NATIONAL FIELD INVESTIGATIONS CENTER– DENVER
BUILDING 53, BOX 25227, DENVER FEDERAL CENTER
DENVER, COLORADO 80225

July 24, 1974

CHAIN OF CUSTODY PROCEDURES

General:

The evidence gathering portion of a survey should be characterized by the minimum number of samples required to give a fair representation of the effluent or water body from which taken. To the extent possible, the quantity of samples and sample locations will be determined prior to the survey.

Chain of Custody procedures must be followed to maintain the documentation necessary to trace sample possession from the time taken until the evidence is introduced into court. A sample is in your "custody" if:

1. It is in your actual physical possession, or
2. It is in your view, after being in your physical possession, or
3. It was in your physical possession and then you locked it up in a manner so that no one could tamper with it.

All survey participants will receive a copy of the survey study plan and will be knowledgeable of its contents prior to the survey. A pre-survey briefing will be held to re-appraise all participants of the survey objectives, sample locations and Chain of Custody procedures. After all Chain of Custody samples are collected, a de-briefing will be held in the field to determine adherence to Chain of Custody procedures and whether additional evidence type samples are required.

Sample Collection:

1. To the maximum extent achievable, as few people as possible should handle the sample.
2. Stream and effluent samples shall be obtained, using standard field sampling techniques.
3. Sample tags (Exhibit I) shall be securely attached to the sample container at the time the complete sample is collected and shall contain, at a minimum, the following information: station number, station location, date taken, time taken, type of sample, sequence number (first sample of the day - sequence No. 1, second sample - sequence No. 2, etc.), analyses required and samplers. The tags must be legibly filled out in ballpoint (waterproof ink).

Chain of Custody Procedures (Continued)

Sample Collection (Continued)

4. Blank samples shall also be taken with preservatives which will be analyzed by the laboratory to exclude the possibility of container or preservative contamination.

5. A pre-printed, bound Field Data Record logbook shall be maintained to record field measurements and other pertinent information necessary to refresh the sampler's memory in the event he later takes the stand to testify regarding his action's during the evidence gathering activity. A separate set of field notebooks shall be maintained for each survey and stored in a safe place where they could be protected and accounted for at all times. Standard formats (Exhibits II and III) have been established to minimize field entries and include the date, time, survey, type of samples taken, volume of each sample, type of analysis, sample numbers, preservatives, sample location and field measurements such as temperature, conductivity, DO, pH, flow and any other pertinent information or observations. The entries shall be signed by the field sampler. The preparation and conservation of the field logbooks during the survey will be the responsibility of the survey coordinator. Once the survey is complete, field logs will be retained by the survey coordinator, or his designated representative, as a part of the permanent record.

6. The field sampler is responsible for the care and custody of the samples collected until properly dispatched to the receiving laboratory or turned over to an assigned custodian. He must assure that each container is in his physical possession or in his view at all times, or locked in such a place and manner that no one can tamper with it.

7. Colored slides or photographs should be taken which would visually show the outfall sample location and any water pollution to substantiate any conclusions of the investigation. Written documentation on the back of the photo should include the signature of the photographer, time, date and site location. Photographs of this nature, which may be used as evidence, shall also be handled recognizing Chain of Custody procedures to prevent alteration.

Transfer of Custody and Shipment:

1. Samples will be accompanied by a Chain of Custody Record which includes the name of the survey, samplers signatures, station number, station location, date, time, type of sample, sequence number, number of containers and analyses required (Fig. IV). When turning over the possession of samples, the transferor and transferee will sign, date and time the sheet. This record sheet

Chain of Custody Procedures (Continued)

allows transfer of custody of a group of samples in the field, to the mobile laboratory or when samples are dispatched to the NFIC - Denver laboratory. When transferring a portion of the samples identified on the sheet to the field mobile laboratory, the individual samples must be noted in the column with the signature of the person relinquishing the samples. The field laboratory person receiving the samples will acknowledge receipt by signing in the appropriate column.

2. The field custodian or field sampler, if a custodian has not been assigned, will have the responsibility of properly packaging and dispatching samples to the proper laboratory for analysis. The "Dispatch" portion of the Chain of Custody Record shall be properly filled out, dated, and signed.

3. Samples will be properly packed in shipment containers such as ice chests, to avoid breakage. The shipping containers will be padlocked for shipment to the receiving laboratory.

4. All packages will be accompanied by the Chain of Custody Record showing identification of the contents. The original will accompany the shipment, and a copy will be retained by the survey coordinator.

5. If sent by mail, register the package with return receipt requested. If sent by common carrier, a Government Bill of Lading should be obtained. Receipts from post offices and bills of lading will be retained as part of the permanent Chain of Custody documentation.

6. If samples are delivered to the laboratory when appropriate personnel are not there to receive them, the samples must be locked in a designated area within the laboratory in a manner so that no one can tamper with them. The same person must then return to the laboratory and unlock the samples and deliver custody to the appropriate custodian.

Laboratory Custody Procedures:

1. The laboratory shall designate a "sample custodian." An alternate will be designated in his absence. In addition, the laboratory shall set aside a "sample storage security area." This should be a clean, dry, isolated room which can be securely locked from the outside.

2. All samples should be handled by the minimum possible number of persons.

3. All incoming samples shall be received only by the custodian, who will indicate receipt by signing the Chain of Custody Record Sheet

Chain of Custody Procedures (Continued)

accompanying the samples and retaining the sheet as permanent records. Couriers picking up samples at the airport, post office, etc. shall sign jointly with the laboratory custodian.

4. Immediately upon receipt, the custodian will place the sample in the sample room, which will be locked at all times except when samples are removed or replaced by the custodian. To the maximum extent possible, only the custodian should be permitted in the sample room.

5. The custodian shall ensure that heat-sensitive or light-sensitive samples, or other sample materials having unusual physical characteristics, or requiring special handling, are properly stored and maintained.

6. Only the custodian will distribute samples to personnel who are to perform tests.

7. The analyst will record in his laboratory notebook or analytical worksheet, identifying information describing the sample, the procedures performed and the results of the testing. The notes shall be dated and indicate who performed the tests. The notes shall be retained as a permanent record in the laboratory and should note any abnormalities which occurred during the testing procedure. In the event that the person who performed the tests is not available as a witness at time of trial, the government may be able to introduce the notes in evidence under the Federal Business Records Act.

8. Standard methods of laboratory analyses shall be used as described in the "Guidelines Establishing Test Procedures for Analysis of Pollutants," 38 F.R. 28758, October 16, 1973. If laboratory personnel deviate from standard procedures, they should be prepared to justify their decision during cross-examination.

9. Laboratory personnel are responsible for the care and custody of the sample once it is handed over to them and should be prepared to testify that the sample was in their possession and view or secured in the laboratory at all times from the moment it was received from the custodian until the tests were run.

10. Once the sample testing is completed, the unused portion of the sample together with all identifying tags and laboratory records, should be returned to the custodian. The returned tagged sample will be retained in the sample room until it is required for trial. Strip charts and other documentation of work will also be turned over to the custodian.

Chain of Custody Procedures (Continued)

11. Samples, tags and laboratory records of tests may be destroyed only upon the order of the laboratory director, who will first confer with the Chief, Enforcement Specialist Office, to make certain that the information is no longer required or the samples have deteriorated.

EPA, NATIONAL FIELD INVESTIGATIONS CENTER - DENVER

Station No.	Date	Time	Sequence No.
Station Location			_____Grab _____Comp.

_____BOD _____Metals
_____Solids _____Oil and Grease
_____COD _____D.O.
_____Nutrients _____Other

Remarks/Preservative:

Samplers:

FRONT

ENVIRONMENTAL PROTECTION AGENCY
OFFICE OF ENFORCEMENT
NATIONAL FIELD INVESTIGATIONS CENTER — DENVER
BUILDING 53, BOX 25227, DENVER FEDERAL CENTER
DENVER, COLORADO 80225

BACK

EXHIBIT II

FOR _____ SURVEY, PHASE_____, DATE _____

TYPE OF SAMPLE_____

ANALYSES REQUIRED

STATION NUMBER	STATION DESCRIPTION	TOTAL VOLUME	TYPE CONTAINER	PRESERVATIVE	NUTRIENTS	BOD	COD	TOC	TOTAL SOLIDS	SUSPENDED SOLIDS	ALKALINITY	DO	pH*	CONDUCTIVITY*	TEMPERATURE*	TOTAL COLIFORM	FECAL COLIFORM	TURBIDITY	OIL AND GREASE	METALS	BACTI	PESTICIDES	HERB	TRACE ORGANICS	PHENOL	CYANIDE

REMARKS

EXHIBIT III

Samplers: _____

_____

_____

_____

FIELD DATA RECORD

STATION	NUMBER	DATE	TIME	TEMPERATURE °C	CONDUCTIVITY μmhos/cm	pH S.U.	D.O. mg/l	Gage Ht. or Flow Ft. or CFS

EXHIBIT IV

ENVIRONMENTAL PROTECTION AGENCY
Office Of Enforcement
NATIONAL FIELD INVESTIGATIONS CENTER– DENVER
Building 53, Box 25227, Denver Federal Center
Denver, Colorado 80225

CHAIN OF CUSTODY RECORD

SURVEY

SAMPLERS: *(Signature)*

STATION NUMBER	STATION LOCATION	DATE	TIME	SAMPLE TYPE			SEQ. NO.	NO. OF CONTAINERS	ANALYSIS REQUIRED
				Water		Air			
				Comp.	Grab.				

Relinquished by: *(Signature)*	**Received by:** *(Signature)*	**Date/Time**
Relinquished by: *(Signature)*	**Received by:** *(Signature)*	**Date/Time**
Relinquished by: *(Signature)*	**Received by:** *(Signature)*	**Date/Time**
Relinquished by: *(Signature)*	**Received by Mobile Laboratory for field analysis:** *(Signature)*	**Date/Time**
Dispatched by: *(Signature)* **Date/Time**	**Received for Laboratory by:**	**Date/Time**
Method of Shipment:		

Distribution: Orig. – Accompany Shipment
1 Copy – Survey Coordinator Field Files

GPO 854 – 809